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AUTHOR	Johnson, R. K.; And Others
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ABSTRACT

This is a collection of comments and research on the problems of students studying at the tertiary level through the medium of a second language. It includes sections on vacabulary, reading skills, syntax, and speech. It also contains several studies of actual students and conditions at the University of Papua and New Guinea. (HW)

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A Report on LANGUAGE PROBLEMS of Tertiary Level Students using English as a Second Language in Papua-New Guinea

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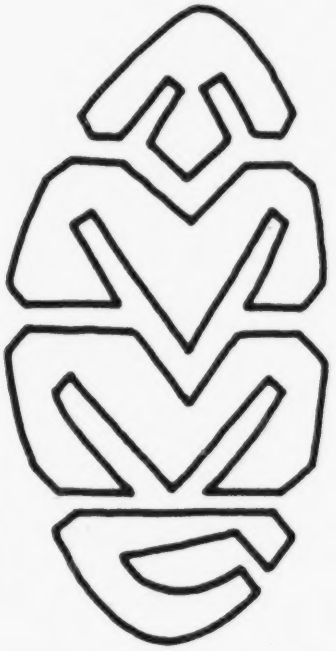

by R K Johnson

TEACHING METHODS AND MATERIALS CENTRE
RESEARCH REPORT 19

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INTRODUCTION

It is hoped that this collection of comment and research on the problems of students studying at tertiary level through the medium of a second language (L_2) will prove interesting and useful both to those who are new to this situation and to those who are already well aware that such problems exist.

Wherever possible, comments are related to and supported by specific research carried out with tertiary level students in Papua New Guinea. Where the relevant research is my own, findings have been incorporated into articles covering various aspects of language; research carried out by others is reproduced in full or in part. I wish to thank John Jones, and John and Elizabeth Price of the University of Papua New Guinea, and Pamela Riley and Sue Argent of the Institute of Technology for permission to use their work.

R.K. JOHNSON

January 1973

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VOCABULARY - 'SURVIVAL TACTICS IN THE FACE OF THE INCOMPREHENSIBLE'

One of the problems which results from the use of a second language as the medium of instruction is that students have to adopt learning strategies related to the peculiarities of that situation. An example of such strategies in operation is given below. Pupils learn very early in primary school, from their first day in fact, to tolerate a high degree of incomprehension. Not understanding what is going on or what the teacher is saying may make life frustrating for the pupil, but it is part of his every-day experience, and he accepts it as such. What is crucial however is survival in the educational rat-race, and survival depends primarily on remembering the right answers, and on not admitting to a lack of understanding. Tertiary level students who are the products of a second language education system are those who have survived in these circumstances, notwithstanding that they may have acquired other more valuable learning strategies along the way.

This article also illustrates problems of vocabulary control, the only generally recognised and researched aspect of the preparation of materials for second language speakers, though little of this research has been applied at tertiary level. It is obvious enough that the second language speaker normally has a very restricted vocabulary; just how restricted is not always realised, and the following may help to clarify the issue. After six years of primary school education, students entering secondary school in Papua New Guinea are considered to have a recognition vocabulary of between 1,000 and 2,000 English words. There is a considerable amount of reading material available which is specially written for this level, and by Form III we can assume that the level will be between 2,000 and 3,000 words. During Forms III and IV, students are usually expected to make the jump to unsimplified materials, and those who will be continuing to tertiary level should be amongst those who manage the jump successfully. Nevertheless enthusiasm for

reading tends to fall off as a result and also pressure of work increasingly limits the time available for general reading; so if we assume that students double their recognition vocabulary to 5,000 words by the beginning of tertiary education we may be being over optimistic. This gives the second language speaker a recognition vocabulary equivalent to the productive vocabulary of the native speaker, but brings him nowhere near the native speaker's estimated 40,000 word recognition vocabulary.

The student is faced then at tertiary level with the problem of making up this leeway as well as dealing with the 'specialised' vocabularies of a number of disciplines. To complicate his task further, he has the speech and writings of academics to deal with: a group who have a much wider vocabulary than average, and who, all too often, feel a professional pride in demonstrating the fact.

The following passage was adapted by G.P. McGregor to illustrate to a teachers' conference the plight of students working in a second language. His students were at the beginning of secondary school with a vocabulary of less than 2,000 words, and McGregor's procedure was to substitute nonsense words for any word in the original version not included in *A General Service List of English Words* (edited by Michael West, published by Longmans) which is based upon word frequency counts and lists the 2,000 'most important' headwords of English. This is a level considerably below tertiary, but the problems facing our students may not be very different.

> "....Musua is formed by the action of crimo-gorgosasms on syllybose, etc., in plant remains, by the breakdown of the gigbom of plants and also from the sighfeelia of soil spunjeye. It has nobiodal properties including great water zubarding power. The sizfikkle and agricultural properties of the soil are a gumshut of its collifloatid and quantitative composition. Small tarpickles cause tepontion of and relative pimnoniability to water, while large tarpickles have the verserve effect....."

As with a first reading of Lewis Carroll's *Jabberwocky* ("T'was brillig, and the slithy toves etc"), there is a feeling that what you are reading is meaningful, and if someone asked whether or not it made sense, it would be hard to say 'No' unequivocally. However, if asked whether we understand it the answer must be 'No'.

Perhaps it is no great surprise to learn that when a passage contains more than a fairly small number of unknown words it becomes incomprehensible. It is surprising, and alarming to discover how easily the skilled survivor can disguise his lack of comprehension if he feels that it is in his interests to do so. Since a tertiary level student in Papua New Guinea is the survivor of a particularly gruelling educational rat-race, and since all his previous experience has taught him that this is in his interests, he will have to be actively convinced that this is no longer the case.

Imagine that the passage given above is part of a handout conscientiously prepared for a lecture, and that the lecturer is now going over the material. He wonders whether his students are following - they look a bit wall-eyed - so he decides to ask a few questions.

Lecturer: How is musua formed, A?

A: By the action of crimo-gorgosasms on syllybose in plant remains.

Lecturer: Yes. Crimo-gorgosasms. You nearly got it right. Say it again.

(The lecturer has a genuine concern to improve his students' English.)

A: Crimo-gorgosasms.

Lecturer: Good. What else? B?

B: The breakdown of the gigbom of plants and the sighfeelia of soil spunjeya.

C: (A survivor first class) The breakdown of the gigbom of plants: that's done by crimo-gorgosasms too is it?

(He isn't just trying to impress. He has found that the answer to a question like this sometimes gives a hint as to what the lecturer is talking about. This time he's unlucky.)

Lecturer: Yes. What effect do tarpickles have?

D: (Also very professional) Small ones cause pimnoniability and large ones don't.

Lecturer: Relatively speaking, relatively.

(Most students are less adept than C and D and, like A and B stick fairly closely to the original wording. They probably are credited with greater precision of mind as a result.)

The lecturer is more than satisfied and continues for the next fifty minutes without requiring any further evidence of understanding from his students.

The original version of the passage is as follows:

> ".....Humus is formed by the action if micro-organisms on cellulose, etc., in plant remains, by the breakdown of the lignin of plants, and also from the mycelia of soil fungi. It has colloidal properties, including great water absorbing power. The physical and agricultural properties of the soil are a function of its qualitative and quantitative composition. Small particles cause retention of and relative impermeability to water, while large particles have the reverse effect....."

The example is overstated perhaps, but it may help, as McGregor puts it "to purge us of the grotesque superstition that if (students) can answer questions about a passage they must have understood it." 'Grotesque superstition' is not an overstatement.

READING SKILLS I

Reading skills are of paramount importance to students at tertiary level, and the following study throws a disturbing light upon language problems and in particular upon reading problems that students face. John and Elizabeth Price used an A.C.E.R. reading comprehension test to compare the performance of Papua New Guinean students with norms for Australian students. Their results show that the average score for preliminary year students at the University of Papua New Guinea was below the first percentile for first year students at the University of Western Australia, and at or below the fifth percentile for fourth year high school students. A discussion of some issues raised by their work follows the report.

A PRELIMINARY STUDY OF READING SKILLS AT THE UNIVERSITY OF PAPUA NEW GUINEA

- JOHN R. PRICE
and
ELIZABETH R. PRICE

A high degree of competence in the reading and comprehension of written material would seem to be a basic requirement for formal education. So much so that one would expect poor readers to be selected out long before reaching tertiary level. Evidence from Australian and United States research indicates that such is not the case, and that in fact, university students in these countries have sufficient reading disabilities to warrant the establishment of remedial classes (Anderson and Hall, 1966; Entwhisle, 1960; Gray, 1960). If first language students in highly developed countries have reading problems, it seems reasonable to investigate the reading skills of second language students at the University of Papua New Guinea (UPNG). The present project represents the first stage of such an investigation.

There has been considerable discussion of the reading abilities of indigenous students at this University, and some research into particular aspects of the problem, but little has been done in the way of comparative research. For better or worse, Papua New Guinea has a Western oriented education system. European teachers, materials, and methods predominate, particularly at the higher levels of the system, e.g. at the University. If teachers are to adjust their methods and materials to the abilities of students, they must know what these abilities are. Unfortunately, psychological attributes, such as abilities, are not measurable in absolute terms and it is necessary to adopt relative measures. The abilities of individuals or groups are assessed in relation to some specified population, in terms of performance on some standardised test.

Large numbers of reading tests are available for testing a wide variety of skills, at various levels. The degree to which a particular test is of value for a project of this kind depends on the availability of suitable normative data for comparison. In this case it was necessary to select a test which had been used at the tertiary level, since the purpose of the project was to compare the reading abilities of UPNG students with those of other university students. In addition, the test should also provide a comprehensive measure of reading skills, preferably with separate scales for each skill, to serve as a diagnostic aid.

The Co-operative Reading Comprehension Test - Form Y was selected as the most suitable instrument for the present project. This test has been widely used in Australia, and normative data are available from a wide variety of student groups, including University entrants, Technical College students, High School students, and others. In addition, the test yields separate scores for vocabulary, speed of comprehension, level of comprehension, and overall reading ability, which made it particularly suitable for our purposes.

METHOD

Subjects

Eighty-one students enrolled in Preliminary Year English at UPNG were tested. These subjects were selected on the basis of their availability for testing during regular tutorial sessions, and they are not necessarily representative of any particular population. However, there is no reason to believe that there was any systematic bias in the selection of the sample.

Procedure

The Co-operative Reading Comprehension Test was administered during regular tutorial sessions. The time required for the test is 45 minutes, so that it fitted well into the period available. Students were advised

beforehand that they would be tested, and that the test results would have no bearing on their assessment for the course. All testing was carried out by one of the authors (E.R.P.) by arrangement with regular tutors.

Testing and scoring were conducted under standardised conditions as set out in the test manual. The scoring procedure for this test is fairly complicated; the number of items correct is transformed into a scale score for each of the three specific reading measures. The test incorporates a correction for guessing by which the score is reduced according to the number of errors. It is possible for a particular individual to record a negative score if the number of errors greatly exceeds the number of correct responses. There is no provision for scaling negative scores of this kind, and such scores must be regarded as not assessable.

RESULTS

Table I shows the mean and standard deviation on each of the four scales for the Preliminary Year English (P.Y.E.) group and for various other groups. The P.Y.E. group performed at a significantly lower level on all four scales than any of the other groups listed in Table I. In all comparisons, the probability associated with the obtained t value was less than 0.001.

Comparison of the P.Y.E. mean with the norms reported in the test manual revealed that the average score on each of the four scales was below the first percentile for University of Western Australia first-year students, i.e. more than 99% of the normative group scored above the P.Y.E. mean. Compared with the norms for 4th year high school students, the P.Y.E. group scored at, or below, the fifth percentile on each of the scales. Norms based on other groups are available, but the results are similar in each case.

TABLE 1

CO-OPERATIVE READING COMPREHENSION TEST MEAN SCALES
FOR VARIOUS STUDENT GROUPS

	Vocab.		Speed		Level		Total	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
UPNG P.Y.E. (1972) N = 81	39.2	7.9	42.1	6.3	44.0	6.7	42.0	6.1
Univ. of West Aust Entrants (1965) N = 935*	65.5	7.7	62.3	9.3	62.0	8.0	63.8	7.5
Univ. of West Aust Foreign Students (1951-53) N = 87**	52.7	9.7	46.1	7.3	49.7	7.1	49.6	7.7
Univ. of New England Entrants (1960) N = 181	64.9	8.9	60.7	9.6	59.6	8.2	62.3	8.4
West Aust 4th Year High School N = 350***	56.0	8.5	54.7	9.8	55.0	9.5	55.0	9.1

* Excluding Foreign students.

** From South-East Asia and Europe.

*** Sample drawn from three metropolitan high schools.

Like many other tests involving multiple choice answers, this one incorporates a correction for guessing by which the score is reduced according to the number of errors. The Co-operative Test has a conversation table for correction which consists basically of reducing the score by one for each four errors. In order to achieve a negative score, a subject must therefore record more than four times as many errors as correct responses. Three subjects recorded negative scores on the vocabulary section of the test, and six on the speed of comprehension and level of comprehension sections.

DISCUSSION

Teaching staff at UPNG have long been aware that indigenous students have reading problems. It is doubtful, however, if many realised the full extent of the problems. The results of this study indicate that these students are in no sense comparable with university entrants in Australia, in terms of reading ability. They fall far below the level of foreign students in an Australian university, which suggests that the problem may go beyond a simple explanation of second language difficulties. Taken at face value the difference between the results of the P.Y.E. sample and the foreign student sample, suggests that the answer may lie in the concepts available to the different groups. The foreign students arrive in Australia with a background of contact with modern technological society, and their language problems are likely to be mainly those of translation, whereas the Papua New Guinea student often has first to grasp the concept involved. Further research is needed to examine the reasons for the difference, preferably with a larger sample and wider ranging tests.

The fact that the P.Y.E. mean was significantly lower than that recorded by fourth-year high school students in Western Australia is worth noting, since that is probably the most directly comparable group in terms of education level. In Western Australia secondary education is of five years duration, so that fourth year would be roughly equivalent to Form V in Papua New Guinea. Both represent the 11th year of schooling.

A study by Trevaskis (1970) is particularly relevant to the comparison of these two groups. He recorded a week of the academic life of a Preliminary Year student at UPNG. The report on the project consists of 360 foolscap pages of typescript. Among the data collected was a summary of the documents used by the student during the week-long period. These represented a total of 193 pages of various types of material; books, handouts, worksheets, and readings. Given that the Preliminary Year course covers two years of the normal course of study i.e. Forms V and VI, the amount of reading required is probably not unreasonable. However, when the relative reading abilities of these students is considered it is incredible that they manage to cope at all. The results of the present project raise the question of just how much of this mass of material is comprehended by students with such poor reading skills.

Considerably more research is needed into reading and its relationship to various courses taught at this University. Unless relevant information is available to staff which indicates the limitations of their students, it is difficult to see how any major improvement in performance can occur.

The results of this project were communicated informally to some members of the academic staff as soon as they were analysed. In most cases, the results were reported orally, and with no details of the procedures, or the nature of the test. The information aroused a number of interesting reactions, many of them strongly negative, and most of these framed in the form of criticisms of the research. We believe that the reading problem at this University is too serious to allow misconceptions and misunderstandings to cloud the issue, so the main reactions are summarised and answered below.

1. Comparisons are odious

   This reaction usually comes from those who, for whatever reason, feel that they are under personal attack. The only possible basis for attack in this study, would have to be one directed at the system that allows students to reach such a level of education with such inadequate

facility in the language of instruction. The purpose of the research was to compare the reading skills of P.Y.E. students with those of other groups as objectively as possible. The aim of the comparison was to provide information which, hopefully, will help staff to teach their subject matter more effectively.

2. The test is culturally biased

Of course the test is biased. It is designed to measure the ability to read and comprehend English, and it must obviously favour native language subjects. The point is that the language of instruction at UPNG is English, and ability to read and comprehend English is, therefore, essential for success. Any student whose reading skills are weak must, inevitably, have difficulty in reading textbooks. Should UPNG students be expected to read the same textbooks as students in Australia? Poor performance on the test does not imply that these students are in any way less intelligent; it does imply that they cannot read at the same level as Australian students and that they are therefore placed at a disadvantage by Australian teaching methods.

Cultural bias of psychological tests is a fashionable cry at the present time, but in the case of the current results, cultural bias is as inevitable as it is irrelevant. One does not test ability to read English with a test written in Motu, or French, or Sanskrit. In most cases, the cultural bias is relevant only if the test results are to be used to support value judgements. The only valid use of the present test scores is for the comparison of one individual or group with some specified normative group.

3. The test is too difficult for P.Y.E. students

Precisely! The test results bear this out very clearly. What is important, however, is that the same test is not too difficult for Australian students of a comparable educational level. Therefore, the two groups should not be treated as if they were equal in reading ability. The test results serve to illuminate the discrepancy between

the two groups, and to indicate the UPNG students probably need a different approach to teaching - probably one which depends less on reading skills, or alternatively, one that involves the use of text-books written specifically for second language students.

4. They are just slower than Australian students, not less able

This particular test yields three measures of reading skill - vocabulary, speed of comprehension, and level of comprehension. On all three scales the P.Y.E. sample average was below the first percentile of university entrants in Australia. In terms of these results, they are considerably less able than the Australian sample, partly because they lack the vocabulary, but also because they read too slowly. There is a minimal reading speed below which comprehension falls off very markedly. The reason appears to be the limitations of short-term memory. Slow readers tend to forget the beginning of the sentence by the time they reach the end. Under these conditions, comprehension must suffer.

Another difficulty for the slow reader is that reading is more time consuming. In a Western-type education system, reading is a major study skill, and those who read slowly must read less widely in a given period of study. In addition, slow readers usually find reading a chore and consequently, do not read for pleasure or for self-edification. On that score alone, slow readers must fall below the overall performance of those with better reading skills, not only in their chosen subject, but in their overall education.

5. They catch up over the period of the degree course*

They improve their performance in absolute terms, as would be expected, but they don't catch up with good readers, simply because the good readers also improve. Good readers also have a better base on which to

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* Elizabeth Price did in fact administer the test to a group of fourth year students, and the results showed only a slight improvement over preliminary year. However the sample was a very small one. (Ed.)

build, and since reading problems seldom disappear spontaneously, we must expect the good readers to improve more than slow readers, unless the latter are given special training.

6. Let us not be diverted by mere facts

This is the quintessence of the negative reaction. There are those who, for whatever reason, do not wish to know. Facts which threaten preconceptions are unacceptable, and there is little anyone can do to overcome that problem.

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The Prices rightly say: **"The reading problem at this University is too serious to allow misconceptions or misunderstandings to cloud the issue."** and therefore before discussing reading problems in general, I would like to challenge one assumption in their report which does not seem justified and which raises issues of considerable importance in the preparation of any materials in a non-western situation. In defending the test against accusations of cultural bias, the authors write: **"Of course the test is biased. It is designed to measure the ability to read and comprehend English, and it must obviously favour native language subjects."** Here the authors assume that language and culture cannot be differenciated, but

this is not the case. It should be possible for example to design a reading test which would reverse the findings of this study to favour Papua New Guinean students simply by using words with specifically Papua New Guinean connotations and in specifically Papua New Guinean contexts. Such a test would be in English, but it would be culturally biased in favour of Papua New Guinean students. The test administered by Elizabeth Price was culturally biased precisely in this sense. It dealt very largely in the comprehension section with well established themes of the 'Western Heritage'. In taking the test myself, I found it possible to select correct multiple choice answers after no more than a glance at the relevant passages to establish their subject matter.* Papua New Guinean students would have had to read the passages carefully and probably return to them to evaluate each of the possible answers. Under the circumstances, the students were faced with the alternatives of being very slow or very inaccurate. Many of them proved to be both. Even those who worked very slowly and carefully would have lacked the background necessary to answer some questions.

This qualification is not intended to reflect on the effectiveness of the test used or on the importance of the results, since most of the reading material students are faced with, particularly in Arts subjects, is equally culturally biased. An excellent example arose two years ago in discussing the suitability of various preliminary year texts with members of the Department of History of Science and Technology. One book considered was *Man Makes Himself* by Vere Gordon Childe, deservedly popular with readers orientated to western civilisation and an excellent introductory text for any western university. A westerner with even the most superficial accumulation of cultural luggage - such as that Aristotle was a smart Greek sometime B.C., Gothic is that kind of church, and the impressionists were the last painters who did proper pictures - will be able to follow the outline at least of works of this kind. Without such minimal cues, even the most perceptive and intelligent reader would find

* This involved an act of faith that the right answer was the obvious answer, but the faith was not misplaced.

much of the material incomprehensible. A few samples from one page should illustrate the kinds of demands made on the reader's cultural background for a full understanding of the text: "**.....a biological evaluation no less mystically conceived than the doctrine of the fall of man and some writings of the English diffusionists....the idea of progress was itself a novelty, entirely foreign to mediaeval or ancient writers on history.... historians not unaffected by the economic situation of their day..... golden age....tree of knowledge....days of depression....to strive at self-elimination.**"

Two conclusions here are relevant to the selection of materials for Papua New Guinean students. 'Popular' texts are not necessarily 'easy' texts and may in fact cause students additional problems. Texts which are dismissed as 'too dull' or 'dry' for an introductory course may have gained these epithets because they are factual, culturally neutral and not 'popular'; yet these may be precisely the qualities which made the text suitable. There is also of course the question of linguistic suitability which is considered elsewhere.

The study by John and Elizabeth Price reveals a potentially calamitous situation for tertiary education in Papua New Guinea, and there are clearly two possible approaches to a solution.

(1) We can try to make the students approximate more closely to their western counterparts through 'remedial' courses. If these were successful, western texts and methods could be used here as effectively as in the West (perhaps not much of a claim).

(2) We can try to adapt methods and materials to the Papua New Guinean situation.

The second alternative is the hard one for academic members of staff. If students fail under (2), their failure is our fault. If they fail under (1) it is theirs. Under (1) it is the 'inadequacies' of the students

which receive the spotlight; under (2) it is the inadequacies of the teachers. Perhaps it is not surprising that most discussion of student problems centres upon their inadequacies, yet when the alternatives are stated, it is clear that alternative (1) is not acceptable politically, socially, culturally, or in fact educationally since a long recognised first principle is that all new learning must be rooted in what the student already knows and must also be relevant to his needs. Even if (1) could succeed, and all the evidence from the Papua New Guinean education system, and from countries with a similar background suggests that it cannot, then the product of the attempt would have been alienated from his own background, from the people his education should have prepared him to help and the problems it should have prepared him to tackle.

Perhaps the definition being given here to cultural bias should be made more precise. I am not referring to the products of Western technology, which may be strange to Papua New Guinea, but are no longer irrelevant. I am referring to those aspects of Western culture which are specifically Western, which give a sense of identity and shared experience to those of us who are classified as Europeans whether we come from Europe or not. These are things which in a western university would provide valuable points of reference, or escape routes to banality when the pressure of introducing a new discipline seems to be getting too great. These things are simply hindrances in the Papua New Guinean situation and impose a barrier of incomprehension between lecturer and student far more impenetrable than any barriers that the difficulties of the subject area could create.

READING SKILLS 2

The fact that students at the University of Papua New Guinea read slowly is generally acknowledged, and statistics from Western universities have been quoted to show that remedial reading programmes have been used with great success in overcoming the reading problems of undergraduates who have English as their first language. As always, evidence from a first language situation has to be treated with caution. A low reading speed is one of the universally recognised handicaps for those working in a second language. In tests carried out throughout the world (it is one of the few well-documented areas of second language performance) average reading speeds at University level have been consistently below 200 words per minute, and as low as 130 words per minute by comparison with the 400+ words per minute averaged by native speaking undergraduates. Remedial reading can be effective only in so far as these low reading speeds are caused by inefficient reading techniques as such and not by difficulty in understanding the vocabulary and structures that the reader is encountering. It is one thing to help a poor reader to develop, for example, more efficient eye movements; it is quite another to help him to understand what he is trying to read. We can assume that the native speaker of English will understand what he decodes, we cannot make that assumption with the second language speaker, and for this reason remedial reading courses by themselves would be of little assistance to the second language student. The authors of the following article would certainly agree with this.

The experiment reported here is nevertheless interesting and encouraging. It shows that some increase in speed is possible, though not to anything like the level achieved by native speakers, and that sophisticated 'machines' are less effective than a method which emphasises concentrated practice.

Speed reading tests usually involve fairly 'light' reading material. It is to be feared that a student's studying speed may be considerably lower, involving a great deal of regression.

EFFECTIVENESS OF THREE METHODS OF INCREASING READING RATE AND COMPREHENSION

- P.M. RILEY
and
S.M. ARGENT
INSTITUTE OF TECHNOLOGY, LAE

Various methods which claim to improve reading rate and comprehension are now available to educational institutions, and are widely advertised. Evaluation of the results or effectiveness of these methods is less easy to find. The present authors have been unable to find any dealing with students for whom English is a second language.

A study by Allen Berger, *Effectiveness of Four Methods of Increasing Reading Rate, Comprehension and Flexibility*, using freshmen from Syracuse University, prompted the present study, which is an evaluation of three methods of increasing reading rate and comprehension for students in Papua New Guinea.

Allen Berger used four methods, (a) Tachistoscope and Classroom Kit VII, published by Learning Through Seeing Inc., (B) Controlled Reader and Filmstrip IJ published by Educational Developmental Laboratories, (C) Controlled pacing, using the filmstrip material of the previous method in book form, paced by hand-held cards, and (D) Paperback scanning, in which each reader had a limited time to scan a page, the time allowed varying every two minutes through the range 10 to 2 seconds a page. All methods used comprehensive quizzes to check understanding. The results showed no significant gains in reading comprehension by any method, possibly because the questions were testing primarily knowledge of details. There were significant gains in reading rate and flexibility as a result of all methods, more gains being made by the group using the paperback scanning. Berger claims these findings suggested the 'the current emphasis on the use

of machines to increase reading rate, comprehension and flexibility should be re-evaluated, for there appear to be other, more effective, less complicated, and less expensive approaches to the desired ends.'*

This study evaluated the effectiveness of three methods of improving reading rate and comprehension for students for whom English is a second language. At present only initial gain has been assessed. The three methods used were : (A) Controlled reader, film series HG, published by Educational Developmental Laboratories, (B) Individual pacing machines using material published by the National Institute for Better Reading, Inc., and (C) Paced reading, using Paperback material and controlling the reading rate by a taped recording instructing students when to turn the page. This last method is an adaptation of the paperback scanning used in Berger's study.

The population sample was the first year students in the Institute of Technology. Each class (except Architecture I) was divided into two matched groups on the results of a cloze reading test, the S.R.A. Reading for Understanding Placement Test, College Level, and a speed reading test. The cloze test used correlated significantly with the results the first year students had gained in English the previous year, so was assumed to measure the skills the English course stressed and measured. For the speed test students were given a set passage and told to begin reading. Three minutes later they were told to circle the word they had just read. This was done twice and a word count used to assess the speed of reading in words per minute. A short objective test was given after the passage had been read so the students would not sacrifice understanding for speed.

Students in each class were ranked on the results of these tests, and the classes divided so every second student went into the same group. Thus initial ability would not affect the results. Each group of the class used one of the three methods, controlled reading, individual pacing machines,

* Allen Berger: *Effectiveness of Four Methods of Increasing Reading Rate, Comprehension and Flexibility*, Forging Ahead in Reading, p.596, Proceedings of 12th Annual Convention of the International Reading Association, Delaware, 1968

or paced reading. Numbers of students using each method were reasonably similar. The Architecture I students, of whom there were eight, all used the same method, paced reading, as lectures could not be timetabled in rooms where the other equipment was available. Again because of timetabling, the students taking Accountancy and Business Studies did not take part in the experiment so formed a control group slightly larger than any of the experimental groups. All first year classes had another 50 minute lecture each week on efficient reading techniques and practice.

Each class met for fifty minutes a week for twelve weeks. Each session took between thirty-five and forty minutes, students reading E.D.L. material from books GH in each group for the remainder of the time. Each student kept a record of his own reading rate and comprehension score.

The three methods used were as follows:

A. CONTROLLED READER

The E.D.L. Controlled Reader projects a film strip at a selected speed. It can be used on any clean white surface, and the image can be read by up to twenty students at a time. Material is printed in lines of 5-7 words, and can be projected in single line units or with a moving slot illuminating five letters at a time. It can be set at speeds of 180 to 1000 words a minute, speed increasing in units of 30 words a minute. Study books with the complete passage, vocabulary guides and comprehension questions, are available.

Instruction recommended by the publishers, Educational Developmental Laboratories, was adapted slightly. As recommended, the moving slot illumination was used for the first eight lessons.

Before each filmstrip was viewed, a printed preview was read and discussed, and vocabulary taught. Additional vocabulary and phrases likely to cause confusion were also taught, as the material has a high 'American culture' content. All words were presented and used contextually.

The filmstrip was then viewed, and students answered comprehension questions of a multiple-choice type from the publisher's study guide. The film was then viewed again at a higher speed, and the students revised the answers to the comprehension questions. The answers were then corrected. At the first session the controlled reader was set at its minimum speed, 180 words a minute. The speed was increased as shown:

Weeks	1 - 3	180-210 words per minute
"	4 - 6	210-240 " " "
"	7 - 9	240-270 " " "
"	10 - 12	270-300 " " "

the increased speed being on the second reading.

B. INDIVIDUAL PACING MACHINES

Students each had a pacing machine with lesson roll and book. Initially they read the notes from the book for the lesson roll they were to use. Then the lesson rolls were followed through. Each lesson roll has exercises and reading selections with instructions as to what speed to work at. Each machine has a speed control dial, and students set the dial at a particular speed for each exercise. As the speeds printed on the roll were too fast for our students, the instructors altered them on every roll before the experiment began. Students followed the altered speed, adding or subtracting their own bonus speed worked out from the first roll to suit themselves individually. Before reading each reading selection students checked the vocabulary from the instruction book, and after reading each selection answered the objective type comprehension questions from the book. All the reading selections on the roll were read the first week, and reread the following week. The questions were answered a second time, and then the answers were checked. The instructor looked at the scores and recommended a faster or slower speed accordingly. Each roll took two sessions, and the first six were used. The remaining two were found in previous years to be unsuitable for Papua New Guinean students as they are American in content and involved in vocabulary and concept. The speeds written on the rolls were

intended to encourage all students using this method to read the last reading selections at 300 words a minute, using the other two methods.

C. PACED READING

The words per page for each exercise or book were calculated, and a table prepared indicating the time in minutes and seconds taken to read at the speeds of 200 to 300 words a minute. A tape recording was made introducing each reading passage, as follows: **"In this reading / Today you will begin reading at x words a minute and finish at x words a minute. I'll tell you when to go on to a new page. Even if you haven't finished reading, you must go on to a new page when told. You will still follow the main thread of the story (or article) and you will force yourself to speed up your reading."** If the student hasn't finished he misses some of the page, but still follows the story. Questions at the end are on main ideas, not details. Students who haven't finished the page soon keep up, and some are delighted to be going on to a new page before the instruction.

Idiomatic expressions and vocabulary are not explained beforehand. The material recommended is fiction or biography, and students should learn to guess intelligently, the meaning of words or phrases from the context. We experimented with factual material (I.M. Hunter's book *Memory* and some psychology from Eyserck) and for this taught terminology, vocabulary and expressions, but this was not as successful as fiction for the purposes of encouraging faster reading with good understanding.

The speed of reading was increased by 20 words per minute during each session, according to the following table:

Week	1	200-220 w.p.m.	Week	9	260-280 w.p.m.
Weeks	2 & 3	220-240 w.p.m.	Week	10	270-290 w.p.m.
Weeks	4 & 5	230-250 w.p.m.	Week	11	270-290 w.p.m.
Weeks	6 & 7	240-260 w.p.m.	Week	12	280-300 w.p.m.
Week	8	250-270 w.p.m.			

Parts of the first three stories were read aloud, on tape, students keeping up with the instructor, to accustom them to the method in use. Parts of the fourth and fifth session were key read on to tape. Key reading is looking at all the words, but concentrating on the important words. I read just the important words or phrases, content words and necessary function words on tape, and students kept up. They had all done some key reading in class before this. The first few pages were read in this way. Instructions were, **"As you will be reading faster than I can read aloud I shall key read the first part, i.e., read aloud the important words. Ycu read all the words but concentrate on the important words. After you have practised key reading, keeping up with me, I shall stop reading aloud and you must read on, going on to a new page when told....."** At the end of each session students answered ten objective-type comprehension questions, as in the other two methods.

Stories were given for the first six sessions, sessions 3 to 6 being one long story. Then factual material was used, accompanied by a short summary of the previous reading. The short summary of the previous reading was used when stories or articles lasting more than one lesson were used. The summary was short, four to six sentences with just the main ideas. We used material complete in itself for the first two sessions (I would recommend this for up to Form II) and then a long story that stretched over four sessions, followed by paperback novels. The story or novel is a good idea for older students, as it relates to their ordinary reading, holds their interest and gives a sense of achievement. Students listened to the tape through earphones, while other students in the room used one of the other methods. The Architecture I students heard the tape externally as earphone facilities were not available.

Conditions were controlled in that students were matched for initial ability in each group, used the same instructions and procedure and had the same instructor, except for Architecture students. All students were aware of their own progress. All - including the Accountancy and Business Studies students - were aware of the experiment. When a student was absent he missed the lesson in all methods as this was necessary with the

controlled Reader and Paced reading methods. In order to miss a lesson roll in the individual Pacer method students would have had to be absent two weeks running, which was unusual. If students finished early they all worked from stories from E.D.L. book GH. They were encouraged to preview the story, answer the questions and record the scores on sheets for that purpose.

RESULTS, EVALUATION & COMMENTS

After the twelve sessions were completed all students were given a reading rate test similar to the one given before the course started, using a different reading passage from the same book. The number of words read in three and then two minutes was calculated and converted to reading speed in words per minute. The reading was followed by a short comprehension quiz to check understanding of the passage read.

Comprehension was assessed using cloze reading procedure. The results are shown in Tables 1, 2, and 3.

Table 1 : Mean Gain in Words Per Minute of Each Method of each student irrespective of initial speed.

Control Group:	17.00 w.p.m.	No. students:	34
Method A (E.D.L.)	21.15 "		26
Method B (Individual Pacing Machines)	52.42 "		24
Method C (Paperback Paced Reading)	75.40 "		31

Table 2 : Mean Percentage Gain in W.P.M. Over Initial Reading Speed of Each Method.

Control Group	11.93% (mean % gain)
Method A (E.D.L.)	14.93%
Method B (Pacing Machines)	33.80%
Method C (Paperback Paced Reading)	44.09%

Table 3 : Mean Percentage Gain in Comprehension Over Initial Comprehension Score of Each Group

Control Group	7.68	(mean % gain)
Method A (E.D.L.)	7.41	
Method B (Pacing Machines)	14.56	
Method C (Paperback)	11.02	

These results indicate that gains in reading rate in the Paperback Paced reading and individual Pacing Machines method were superior to the E.D.L. Controlled Reader method and the control group, and that the Paperback method produced the greatest gain in reading rate both in actual scores and in mean percentage gain over initial reading rate. This could be partly because there is more transfer from this method to other material.

In comprehension the pacing machine and paperback methods again resulted in higher gains over the initial scores.

Although the study was with group instruction and practice, individual students made considerable gains in both reading rate and comprehension, especially in the Paperback and Pacing Machine groups. Top scores were a gain of 152 over an initial speed of 182 in the Paperback method; 115 over 200 in the Pacing Machine group and 53 over 215 in the E.D.L. method. Individual students may profit more from one of these methods, or a combination of them.

The superiority of the Paperback Paced reading method, as indicated by this study, has important educational implications. This is the cheapest method, needing sets of paperback novels and stories and a tape recorder.** Once the instructor has divided the material into suitable sections, made the tape for the lesson and written comprehension questions testing overall grasp of the material, there is little teacher involvement, and the

** One of the classes using this method could not be accommodated in the language laboratory and worked from a battery-operated tape recorder in an ordinary classroom.

marking of the objective type quiz can be done quickly in class. There is little technical skill required in operating the tape recorder, and less opportunity for the interruptions to lessons that occur from machines breaking down, filmstrips or lesson rolls jamming and tearing, bulbs needing replacement and the other trials that beset the teacher incorporating visual aids into teaching in Papua New Guinea.

It is also possible to relate the material used in the reading lesson to other subjects, or areas of interest of the students. Reading passages on any topic can be selected and roneoed for classroom use. These can be later used for oral work and discussion, or for controlled writing. This is valuable in that much of the material used in secondary schools - especially that of a factual nature - must be simplified if students are to gain much from it. As students become more proficient in the skills, more difficult material can be introduced, and this is desirable in that much of the reading we are preparing the students for will be non-fiction.***

The students using the Individual Pacing Machines also showed considerable gain in both reading speed and comprehension compared to the control group. As each student works individually at his own pace, this has obvious advantages. Although the method is advertised as self-instruction, it made considerable demands on teacher-time as both procedure and instructions are quite complex. The material is American-oriented, and some presents difficulties for Papua New Guinean students. It is not designed as second language work.

This study reinforces Berger's suggestion that the effectiveness of different methods of improving reading rate and comprehension need to be evaluated carefully, especially for second language work. In Papua New Guinea this becomes even more important as limited finance is stretched to provide teaching aids.

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*** For the purposes of this experiment this was not done, as the objective was to assess the effectiveness of the methods, and specially written material cannot be used with either of the other methods.

READING SKILLS 3

It may be of great assistance to L_2 students to eliminate low frequency words and irrelevant cultural concepts from texts and from lectures, but it is not a complete solution.

John Jones' study, part of which is reproduced below, shows that common English words are amongst the most difficult for second language speakers to master, and in particular, words expressing conditionality (e.g. if... ...then; whatever) or relative amounts (e.g. 'least', 'more' etc. which tend to be given absolute attributes: i.e. the 'least important' tends to be equated with 'not important'.)

As John Jones points out, it is not always clear precisely where the language difficulty arises. There may be more than one aspect of the test item which contributes to the subjects' error, or the misunderstanding may be caused by difficulties in the form of the multiple choice answers rather than the test item itself. Nevertheless, it is clearly shown that second language students make serious errors in interpreting fundamental concepts and logical relationships expressed through lexical items and grammatical relationships of English which are in common usage and for which comprehension is normally taken for granted.

Similar results have been obtained at upper secondary level.* Like

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* Mrs Glen Woolford - unpublished course work.

John Jones, Glen Woolford noted the difficulty with relational terms: **"Given a sentence which says '.....found an active volcano about 4,000 ft higher than Mt Etna' many groups argued that the choice 'a volcano 4,000 ft high' might or might not be true because they were not told the height of Mt Etna."**

Another relational concept investigated by John Jones, causality, was also found by Glen Woolford to be misunderstood: **"One particular weakness was the almost universal failure to distinguish the relationship implied by the use of 'because'."**

She comments also on students' difficulty with figurative language: **".....if he 'took pains to tell', it must be a hurtful process"**; and with inference: **"Many students could not see that the phrase 'the official reason given' implied that there were likely to be 'unofficial reasons'."** Both of these are fairly obvious sources of numerous errors and misunderstandings. In the final point of his section headed **"Some possible Implications for the Teaching of English"**, John Jones seems to suggest that English is taught in isolation from other subjects such as Maths. This cannot be the case since English and only English is used for the teaching of all subjects from Class One in primary school onwards. If however he is suggesting that Maths concepts not taught in Maths lessons are unlikely to be taught at all, then I couldn't agree more fully, and the implications for all subject specialists are obvious.

COMPREHENSION OF SOME COMMONLY-USED WORDS - A STUDY WITH TERTIARY STUDENTS IN PAPUA NEW GUINEA

- JOHN JONES

1.0 CONSTRUCTION OF THE TEST

The test construction procedure was a fairly informal one; this was considered to be justified as it was a pilot study that was being undertaken. Items for possible inclusion in the test were obtained from three sources:

(i) A personal opinion of words and phrases which were likely to be important in logical argument and discussions of a quantitative nature.

(ii) Suggestions from colleagues as to words which should be included.

(iii) A reading of random sections of an elementary science textbook, noting possibilities for inclusion in the test.

After an initial list of words had been compiled, a number were excluded on the grounds that they were probably not familiar enough, and might therefore be difficult in the 'classical' vocabulary sense. Finally, a list of forty-six words and phrases was obtained, most of which were quantifiers, moderators and connectives. A full list of the items is given in Table 2, Section 2.0. A copy of the complete test may be obtained from the author.

Once key words and phrases had been decided upon, the next step was that of taking a decision as to the *type* of test item to be used. There are several possibilities, which fall into two broad groups:

(i) Multiple choice, where the student selects a correct answer from a number of alternatives;

(ii) Supply type; where the student is required to supply the answer, in his own words.

The second alternative was rejected. The chief aim of the investigation was to determine students' ability to comprehend precisely the meaning of a sentence containing a key word or phrase: Supply items could well be measuring to a large extent a student's fluency in written English, and a further complication would have been the necessarily somewhat subjective nature of the marking.

Having opted for a multiple-choice format, several possibilities still remained. Probably the easiest procedure would have been to underline the key word or phrase in a sentence, and ask the student to choose a correct definition of its meaning, in the context, from a number of alternatives. This is not a very satisfactory procedure, however, since it is the *meaning conveyed by the whole sentence* which is important. Consider the following example, from the test which was constructed.

The number of children attending schools in the area has been *decreasing*.

(i) A. Fewer children than before now attend school.
B. Only a small number of children in the area now go to school.
C. Soon, there will be no children in the area attending school.
D. Previously, a lot of children in the area used to go to school.

(ii) A. Staying the same.
B. Getting larger.
C. Getting smaller.
D. Varying.

In this example, it would be quite possible for someone to choose the correct meaning of *decreasing* from the alternatives listed under (ii), and yet fail to comprehend adequately the idea which the sentence as a whole conveys; in this case a failure to respond correctly when

confronted with the alternatives under (i) would occur. This tends to be borne out by the following observation:

48% of a sample of UPNG preliminary year students responded incorrectly to the above item, with alternatives (I) to choose from. Only 3% of a sample of high school pupils responded incorrectly to an item involving the word *decreases*, during the SWNG investigations,* when the item format was of the form represented by (ii) above. (The degree of discrimination required by the SWNG item was quite low in this particular case).

The test format which was eventually adopted still suffers from a number of drawbacks, two of which might be worth noting.

(a) The obvious one, from which all tests of this kind must suffer, that only one context and one syntactic structure is being tested.

(b) In some cases it is difficult to assess whether the problem occurs in the *question* or the *answer*. For example, take the item above, involving *decreasing*, where the correct choice is:-

A. Fewer children than before now attend school.

When a wrong response is made to this item, it is not really possible to state that it was the meaning of *decreasing* which led to the wrong choice; it could equally well be a non-comprehension of the concept represented by the word *fewer* (in the answer) which caused the trouble. In the final analysis all one can say is that a wrong responder cannot recognise that the same meaning is conveyed by the key sentence and the correct choice from among the alternatives. (Or possibly, it might be more accurate to say that the wrong responder cannot discriminate effectively between the shades of meaning represented by the four alternatives, and select that alternative which conveys the same meaning as the key sentence.)

One example of an item from the test has been given above; two further items are presented below, for illustrative purposes.

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* P.L. Gardner *Project SWNG - Scientific Words New Guinea* Port Moresby, Department of Education, 1971

(i) *Whenever he has a headache he takes aspirin.*

A. He takes aspirin often.
B. The only time he takes aspirin is when he has a headache.
C. He never takes aspirin unless he has a headache.
D. Every time he has a headache he takes aspirin.

(ii) *At least fifteen people were killed.*

A. Fifteen or more people were killed.
B. Many people were killed.
C. Less than fifteen people were killed.
D. Exactly fifteen people were killed.

There was no time-limit attached to the test, as such a time-limit might well have resulted in the non-completion of the test by some students, and careless completion by others. A description of the samples to whom the test was administered, together with some of the results is given in the next section.

2.0 RESULTS

2.1 THE SAMPLES AND THEIR MEAN SCORES

The test was administered initially to 113 UPNG preliminary year students, toward the end of the first semester of 1972. Some of the results seemed interesting enough to be worth following up, so the test was next given to a sample of 47 native English speaking students (Forms IV and V) at Port Moresby High School. These two tests were followed up by first-year samples at Goroka Teachers' College, Sogeri Senior High School and the Institute of Technology, Lae. Overall the sample consisted of the most highly qualified Form IV leavers from P.N.G. high schools; an additional sample of 47 native English speakers from high school served as a 'control'.

The mean and standard deviation for each of the samples is given in Table I below. The scores are raw scores, with the maximum possible score equal to 46.

TABLE 1 MEAN SCORES FOR EACH OF THE SAMPLES

	Mean	S.D.
UPNG Preliminary Year (N = 113)	31.7	4.1
Sogeri Senior High - Form V (N = 57)	32.0	4.4
Institute of Technology - Year 1 (N = 58)	33.4	4.6
Goroka Teachers' College - Year 1 (N = 51)	31.9	4.7
Port Moresby High - Forms IV (N = 47)	42.5	2.5

These results can be summed up very briefly as follows:

There are no significant differences between the means or the standard deviations for the first four institutions; the native English speakers perform very significantly better than any of these first four institutions. These results are gratifying in that they are in line with the test rationale. Any reasonably intelligent native English speaker *should* find the test quite simple, since the items involve very common vocabulary - and this is in fact what happens. So it is reasonable to assume that on the whole an inability on the part of second language speakers to respond correctly to an item is due to a 'real' lack of comprehension, and is not due to a fault in the item itself. (This is not true in every case: there are a few dubious items which need revision.)

2.2 RESPONSES BY ITEM FOR EACH OF THE SAMPLES

Table 2 shows the percentage of each sample who responded *wrongly* to each item. The probable key word or phrase is given in each case, but as explained in Section 1.0, it is not possible to be certain that it was the stated word which actually led to the wrong responses.

The key is as follows:

Column A - Institute of Technology, Year I
Column B - University, Preliminary Year
Column C - Goroka Teachers' College, Year I
Column D - Sogeri Senior High, Form V
Column E - Port Moresby High, Forms IV, V
Column F - SWNG (where there is duplication)

TABLE 2 PERCENTAGE OF WRONG RESPONSES TO EACH ITEM

	A	B	C	D	E	F
accurately	16	19	16	23	4	10 (accurate)
although	2	6	10	7	2	-
as a consequence	62	50	66	60	21	-
at present	10	13	8	16	0	-
at least	41	36	44	33	4	-
because	28	23	30	39	2	-
central	16	21	18	18	0	-
class.....includes	55	70	56	53	13	-
compulsory	3	6	6	7	0	-
concluded	26	21	32	19	4	11 (conclusion)
consistent	38	36	42	49	6	48 (consistent)
constant	0	1	0	2	0	27 (constant)
contradictory	71	62	58	74	9	-
decreasing	38	48	42	40	11	3 (decrease)
definitely becoming	41	40	42	56	6	10 (definitely going)

TABLE 2 (continued)

	A	B	C	D	E	F
dominant	5	10	6	7	0	64 (dominant)
either.....or	2	0	0	0	4	-
essential	81	70	80	74	38	58 (essential)
excluded (the possibility)	53	52	56	42	19	17 (exclude)
fraction	24	40	38	39	19	-
frequent	17	21	14	21	0	-
gradually	0	5	10	4	4	-
identical	24	39	18	25	0	-
implied	3	5	8	2	2	-
increase	28	40	28	28	0	-
lack	14	15	6	14	2	-
largest	5	10	20	11	2	-
least	28	23	18	33	2	-
limit	36	45	40	47	6	59 (limit)
major	47	34	40	40	40*	16 (majority)
neither....nor	33	42	32	26	6	-
not all	52	66	58	72	23	-
only	60	62	64	51	6	-
particular	12	23	18	30	0	-
permissable	21	27	30	19	2	-
possible	33	31	48	35	0	-
probably	12	17	18	7	0	probability (?) 87
relative to	24	39	28	32	9	51 (relative to)
significantly	3	3	8	4	0	-
simultaneously	45	38	52	42	13	44 (simultaneously)
some	43	63	68	61	21	-
stationary	14	22	42	26	6	34 (stationary)
the most	16	28	26	23	2	-
unique	14	15	14	26	2	44 (unique)
vague	21	15	30	28	0	-
whenever	29	40	46	44	4	-

There are several points which are immediately obvious:

(a) The native English speakers perform significantly better on all items (apart from one) than do the second language speakers. (This exception is the one involving the word *major*. The author took the phrase 'the major part' to mean 'a part which is greater than one half of the whole'; however, a substantial number of first language speakers interpreted it as meaning 'almost all').

(b) There is some variation in performance across second language samples for most of the items, and in some cases these differences are probably significant. These differences are possibly due to the specific teaching content within institutes, to which the different groups of subjects have been subjected.

(c) There is very little relation between the level of difficulty of an item as measured by the present test and that which was determined by the SWNG investigation. A first reaction might be that the present test should indicate that individual items are *less* difficult than does SWNG, since the present test was administered to a very able group of students, whereas SWNG was aimed at average students. However, this is not the case in many instances. The reason for this is probably that SWNG calls for a much smaller degree of discrimination in most cases than does the present test. (See Section 1.0). Consider the examples of the items which test the concept described by the word *definitely*.

SWNG Jim said he was *definitely* going swimming after school.

This means that Jim was:

A. happy
B. sure
C. doubtful
D. not interested

Present Test:

The air in Port Moresby is *definitely* becoming more polluted.

A. It is possible that the air in Port Moresby is now more polluted than it used to be.

B. The air in Port Moresby is very polluted.

C. There is a very rapid increase in the amount of pollution in the air in Port Moresby.

D. It is absolutely certain that the air in Port Moresby is more polluted than it used to be.

This example from the present test provides another case of the uncertainty associated with pin-pointing specific difficulties with items. Although the item was written to test the comprehension of *definitely (becoming)* the concept of *more* could be a contributing factor to the difficulty which is experienced.

The degree of discrimination required to respond correctly to the present test item is much greater than that required by SWNG. This is evidenced by the fact that about 45% of first year tertiary students selected wrongly in the present test, while only 10% of high school students chose wrongly in the SWNG context.

Where the discrimination required is about the same (judged subjectively) for both tests, then the results are much more in line. Take the example of *consistent*.

SWNG Some students measured the length of a box, and their results were *consistent*.

A. all different
B. all too small
C. all about the same
D. some too large, some too small

Present Test His examination results were very *consistent*.

A. He got very good examination results.
B. His examination results were all about the same.
C. He got some very good marks, and some bad ones.
D. He worked very hard, and as a result he got good examination results.

In this case, the discrimination required is more comparable, (though SWNG may be slightly easier - a purely subjective assessment) and the results mirror this. 48% of high school students responded incorrectly to the SWNG item, while the number responding incorrectly to the present test item was of the order of 40%.

2.3 SOME SPECIFIC DIFFICULTIES

It is possible to group observed difficulties with items into three very broad areas.

2.3.1 Items involving conditionality.

An example will suffice to illustrate the kind of difficulty which occurs; take the item involving *whenever*.

(a) Whenever he has a headache he takes aspirin.

The statement can be reduced to the form:

'if A then X'

where,

A = 'a headache'
X = 'the taking of aspirin'.

In many cases of wrong responses to this item subjects chose a response which showed that they may have been imposing the erroneous interpretation

'if X then A' on top or
'if A then X'.

The two statements taken in conjunction lead to the interpretation of 'if' as 'if and only if'. (See also section 1). For example, the choice of:

'The only time he takes aspirin is when he has a headache' to mean the same as (a) above, is indicative of this misinterpretation.

2.3.2 Items involving Relative Amounts

Many of the items dealt with the concept of relative amount, either in the key sentence, or in the possible alternatives, or in both. This seems to have caused some considerable difficulty. Consider the example of the item containing the phrase *the least*.

'Of all our problems, this one is the least.'

The concept described by *the least* is a purely relative one; the fact that the particular problem is the least of a group carries no implication that it is a small or trivial problem; it could still be extremely important. This point seems to have caused some trouble; a popular wrong response to the above item was:

'This is an unimportant problem.'

The same phenomenan may be observed with respect to many of the items; relational concepts are translated into absolute terms. As another example, take the item:

'The population of the area has shown an increase'

Between 30% and 40% of the first year tertiary students responded wrongly to this item; the popular wrong responses were:

(a) The area is now densely populated.

(b) There used to be very few people living in the area, but now there are many.

This choice does tend to indicate that the concept of *increase* is being confused with that of *large* in absolute terms. (although *large* is itself, of course, a relational concept)

The work of Cohen and his co-workers, (e.g. Cohen & Hansel (1956), Cohen, Dearnley & Hansel (1957) has thrown some interesting light upon the contextual interpretation of quantitative concepts such as *often, likely, soon, some, seldom,* etc. The point is made that there is a class of such words which enable one to converse in a way which would be impossible if one always had to state precise numerical values or probabilities. It was found that such words, whose very quality of usefulness is in their vagueness, were nevertheless accepted as having a core of common meaning within any given context. The point to be made here is that although some words are used in a deliberately vague sense, the present test suggested that they are nevertheless recognised by first language speakers, but not to the same extent by second language speakers, as having a quite well-defined meaning, which is subject to given constraints.

The example of the item involving *increase* illustrates this fairly clearly. On its own, the information that the population of an area has shown an increase is very vague; it tells us nothing about the functional dependence of the population on time, nor about the absolute magnitudes involved. All it indicates is that population is now greater than it was some time previously, a fact which was understood perfectly by the first-language sample - all responded correctly to the item. The second-language sample, on the other hand, impose the extra implication that (a) the previous population was small, and/or (b) the present population is large, and answer accordingly.

2.3.3 Straight Vocabulary Difficulties

The examples of these are fairly straight-forward, and obvious from Table 2, and not much can be said in addition. The item in this class which seemed to cause most difficulty was *contradictory*. The meanings of words such as *dominant, implied, significantly,* which one might have expected to cause some difficulty, were on the whole well understood. This may have been due to the context in which they were used, or the ineffectiveness of the distractors; possibly though, 'straight' vocabulary items of this degree of difficulty are not likely to cause too much trouble among first year tertiary students.

3.0 SOME POSSIBLE IMPLICATIONS FOR THE TEACHING OF ENGLISH

Many of the words in the test which caused the most trouble - words like *not all, some, only, at least,* etc. - are words with which every teacher is involved, regardless of subject. Some of the conditional and relational concepts are particularly important for communicating in the areas of science and mathematics. To what extent is it the province of the English specialist to teach the meaning of language, and to what extent does *every* teacher bear this responsibility? One often hears the cry that 'every teacher is an English teacher', and just as often hears it denied.

The responsibility for correcting English, in assignments outside the English subject area, is often denied on the grounds that 'there is just not enough time to correct grammatical errors, spelling mistakes, etc., and in any case one is primarily concerned with a student's grasp of the subject matter.' It must be admitted that this is a tenable point of view. However, everyone *should* probably be an English teacher to the extent that students are not 'given the benefit of the doubt', when written (or spoken) communications are unclear or patently wrong. There is often a strong temptation to assume that a student 'really' knew what he was talking or writing about, but couldn't quite express himself. But is this assumption justified?

Recently some work on the concept of density was carried out with indigenous Form IV students, at a local high school. At one stage, students were required to describe how the density of an object would be calculated in a certain situation; this involved writing something like:

".....divide the mass by the volume to find the density."

In many cases, however, what was *actually* written was:

".....divide the volume by the mass to find the density."

To complicate the issue, some students then went on to write:

"i.e. density = $\frac{m}{v}$

where m = mass, v = volume."

The students in this case *did* seem to 'really' know what they were talking about, as judged by the writing of the equation, but at the same time described the situation erroneously. This seems to be a clear case of an occasion when a science teacher should be an English teacher, and make sure that the concept "A divided by B" corresponds to $\frac{(A)}{(B)}$ and *not* $\frac{(B)}{(A)}$. If a teacher is prepared to let this sort of mistake go uncorrected, then he is:

(a) making the job of himself and future teachers much harder, in that a *wrong* interpretation of a concept is being reinforced, by omission,

(b) being totally unfair to the pupil for the same reason - later unlearning will be difficult.

For the same reason that no physics teacher, for example, would let a mistake in mathematics during an exercise go uncorrected, teachers in general should not allow 'wrong' English to slip through. Each uncorrected mistake is a potential stiumlus for its repetition.

As one further example of 'giving the benefit of the doubt', the following

exchange was heard recently on the radio during a broadcast of 'Form IV Quiz':

Questionmaster: **What does the proverb 'Never count your chickens before they're hatched' mean?**

Form IV boy: **It means that someone should not plan ahead before he does it. (or something very similar).**

Questionmaster: **(after a brief pause). That is perfectly correct!**

It is during the early years at school that most of the commonly-used words are learned; in many cases these words are learned in isolation from concrete reality, via 'drill'. This could well mean that although pupils may learn to use words in their correct grammatical context, they have no real comprehension of the concepts for which these words act as labels. Might it not be better to learn English in a co-ordinated scheme with other subjects, so that the concepts and logical structures represented by English language occur in conjunction with specific content-based examples? In modern maths, for example, concepts such as *not all, at least, equal to,* etc. are inherent in the structure of what is being taught. Might it not be better to teach the use of these concepts in some kind of unified English/Maths programme, with the hope that they will be better understood than they seem to be at present?

This article is an extract from the *Educational Research Unit Report 4* UPNG November 1972, under the same title.

SYNTAX - 'WORDS, WORDS, WORDS. IF ONLY IT WERE THAT SIMPLE.'

As already stated, most of the attention paid to the problems of L_2 speakers has been given to vocabulary. However in addition to the semantic meanings of the words in a passage, the reader must also understand the syntactic meaning, or the meaningful relationships between the words in the passage. To give an obvious example, both 'Jim will hit Mary', and 'Mary will hit Jim' are comprehensible in terms of who will do the hitting and who will be hit, while 'Jim Mary hit will' is not and therefore does not come within the set of meaningful grammatical relationships or the syntax of English. Most people have at one time or another attempted a translation using a dictionary from a foreign language into English, only to find that in spite of having all the words, the meaning is still not clear. This happens even between Indo-European languages, but is much more of a problem between languages less closely related. The following is a word for word translation from an American Indian language:

".....You will I wish together remain by you it man you..."

Here we have the opposite case from *Jabberwocky*. *Jabberwocky* was semantically unintelligible but syntactically meaningful. This is semantically intelligible, but fails to communicate (far more so than *Jabberwocky*) because it is syntactically meaningless.

At tertiary level, syntactic complexity can be a serious problem for students with complex ideas to express but without the necessary control over the complex structures they need in order to communicate those ideas. As a result, communication breaks down or the receiver is forced to guess at the communicator's meaning. Syntactic complexity also contributes to difficulty in reading, and in this area students receive little help. Lecturers and tutors can deal with vocabulary comparatively easily, but where the structure of the language is concerned, a paraphrase may solve the immediate problem, but it is difficult to establish the problem in

the first place, and harder to find any solution that will assist the student in future.

The first objective of the study reported here was to develop an effective instrument for measuring levels of syntactic difficulty. This instrument could then be applied to various texts in order to establish their 'readability' in these terms. The instrument has been developed and seems to give an effective measurement of syntactic complexity through a rating: the higher the rating, the simpler the grammatical structure of the passage, and the lower the rating, the more complex the grammatical structure.* A beginning reader for a primary school child might have a rating of infinity; academic writing tends to fall into a range from 0.5 to 2.0, while simplified materials produced for lower secondary schools score mostly in the range 4.0 to 6.0, but may score as high as 10.0.

Unfortunately the calculations involved are time consuming and it would not be practicable to apply the technique to all texts under consideration for use in Papua New Guinea. In some utopian future, the measurement may be done by a computer for all books intended for second language students, which is technically possible, and would give writers and publishers in this field a much needed guideline.

Native speakers are often extremely poor at evaluating the syntactic complexity of materials they read or write. The operations of the syntax of their language are as automatic to them as that of the muscles used for walking, and they are unaware of their operation until something goes wrong i.e. a 'mistake' is made, or extra strain is imposed on the system for one reason or another. The second language speaker does not have the same degree of automaticity. He frequently is in the position of looking for structures which, for him, don't exist. Similarly, it doesn't require a Henry James or a William Faulkner to impose strain on the L_2 speaker's system, and this is no doubt a major cause of the slow reading

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* The techniques for measurement are described in Johnson R.K. *An Attempt to Establish Levels of Reading Difficulty in Terms of Syntactic Complexity* KIVUNG Vol 5 No. 1 April 1972.

speed of second language students.

Briefly, the following seem to be the main factors which contribute to structural complexity. Contrary to many statements on the subject, length of sentence is not a crucial factor in itself. Obviously a long sentence provides scope for complexity, but a long sentence consisting of simple clauses and connectors is no more complex than a series of one clause sentences; in fact it may be easier to read, since the connectors help to establish the inter-clausal relationships. The crucial factors are (for want of better expressions): (1) 'deviance from normality' and (2) 'density'.

(1) 'Normality' for English is a sentence which has its grammatical subject first, its verb second, its grammatical object third, followed by further adverbial modification. The various possibilities for altering this order give the writer stylistic freedom, and the opportunity to gain emphasis, irony or other special effects. At tertiary level of course our students have a reasonably high level of tolerance to such manipulation, but if a writer tends to go to extremes, his reader will not only miss the 'special effects', he may miss the plain sense of the words as well. Consider the following crude example:

(a) Cyclonic hail fell in torrents uprooting trees and destroying houses.

(b) Amidst torrents of hail cyclonic, uprooted was both house and tree.

Ludicrous as it sounds in (b), such convolutions are quite common in academic writing.

(2) 'Density' is rather more complex and has two main aspects:

1. The number of 'decoding units' in a clause adds to its density and therefore complexity. Compare (c) and (d):

(c) He likes pretending to be ill.

(c) is regarded as having three decoding units:

(1) He likes X

(2) He pretends X

(3) He is ill.

(d) The children were playing football on the sports field yesterday.

(d) is regarded as having only one decoding unit, and therefore as being a 'simpler' sentence.

There are of course many ways in which a writer may increase the density of a clause.

(11) The density of a sentence is increased when other clauses are embedded within or subordinated to a main clause, and all the material that I have examined has shown that this type of density is typical of academic writing, and invariably increases in any type of writing when the author is attempting to be precise. The following is an excellent example: it is taken from a Reserve Bank publication which was designed for primary school leavers.

(e) 'The point we want to make is that everyone who has had anything to do with the making of a motor car - from producing the raw materials to the final task of assembling the parts - must be paid wages by the people who own and manage the many factories engaged in the industry.'

(This sentence has a syntactic complexity rating of 0.4. The materials as a whole averaged about 6.0).

Another kind of density is information density, but this relates more to semantics and cultural background which are discussed elsewhere.

A further study* using this measure of syntactic complexity has been to compare the writing of L_1 and L_2 speakers of English at tertiary, secondary and primary levels. The hypothesis on which the study was based was that L_2 speakers would consistently use a less complex form of language syntax than first language speakers, and associated with this hypothesis was the possibility that inability to use more complex structure might affect the student's ability to handle complex thought.

If the study had supported this notion, then the whole basis of education through the medium of a L_2 would have been undermined. Fortunately this was not proved, though the possibility that there is some connection between syntactic and conceptual complexity should not be discounted.

At tertiary level, the study compared samples of the writing of first year anthropology students. Twenty-five subjects were L_2 speakers and fifteen subjects were L_1 speakers. The average complexity rating for L_1 speakers was 1.7, and the average rating for L_2 speakers was 3.6.

Thus the hypothesis was strongly supported overall, but there was a certain amount of overlap between the two groups, and it was also obvious that there was little correlation between quality of writing and complexity rating, i.e. those who expressed their ideas most clearly and eloquently were not necessarily those whose writing was most complex. Far more important however, it was clear from the analysis that complexity of thought is not dependent in any readily identifiable way upon the availability of complex syntactical structures. Reasonably enough perhaps, syntax was shown to be not a mediator of thought relationships but simply the medium for the communication of those relationships. The lack of syntax resulted in communication breakdown rather than inhibition, so far as could be ascertained, of thought processes. (If I seem to be labouring the obvious, I can only say that this did not seem obvious to me some

* Johnson R.K. - In progress

time ago, and it is the subject of considerable controversy in Phycholinguistics, developmental Psychology and Sociolinguistics, i.e. as to the relationships between language and thought.)

Consider the following in which it seems that the thought relationships of the L_2 student are completely clear to him, but cannot be clear to the reader since when the student needed appropriate syntactical structures they were not available to him.

(f) 'The basic argument of Custom and Conflict in Africa is that, when there is a disorder within a society which is regarded to be a possible cause for a bre[illegible]down in Customs, Conflict arises in order that the disorder may be removed and the normal life cycle is restored under the traditional customs.'

More extreme examples, this time closer to complete breakdown, are the following:

(g) 'In fact both of these two societies when want to exchange with partners those who want to receive goods are those who do the approaching.'

(h) 'Back to his functionalism process Malinowski did emphasize the ways of life people live especially with the connection of Kula expedition What taboos must be taken into account as precaution to the Kula or ancestral angered procedures they might in turn, turn their backs on them when on the expedition.'

L_1 speakers under pressure sometimes write in a similar way, but not necessarily for the same reason, and certainly not as frequently.

As John Jones noted (see previous study), supervisors dealing with such material usually take the attitude - 'Well, it is obvious enough what he

means.' This is probably an unjustified assumption since there is abundant experimental evidence of the human tendency to impose order on chaos and form on what is formless. Just as one example: when subjects listened to sentences obscured by white noise (which obscures all frequencies equally) they gave different accounts of what they imagined they had heard in relation to five given topics. The subjects were indignant and incredulous when assured of the true situation, which was that they had heard the same sentence on each occasion and that sentence was completely unintelligible.

There is another, and perhaps more constructive reason for not 'giving students the benefit of the doubt'. The acquisition of language seems to be a response to felt needs, and development continues up to the point when those needs are satisfied. It is generally considered that L_1 development of syntax is complete by the early teens (by the age of five, some people have claimed), but this is not the case as is shown by a comparison between the average syntactic complexity rating of L_1 secondary students and L_1 tertiary students: 4.4 as against 1.7. Clearly the tertiary level students have found it necessary to develop their syntactic resources in order to meet the increased communication demands of the tertiary situation.

The attitude 'I know what he means' may remove from the L_2 student a very necessary source of pressure to develop his language ability. Through insisting as far as possible upon clarity of expression, the supervisor is performing a valuable service for his students in stimulating the need to develop greater powers of expression.

'Clarity of expression' of course involves all aspects of language, but syntax is a vital aspect which is all too often taken for granted by L_1 speakers.

SPEECH

Language is often claimed as the uniquely human attribute. It probably is, but speech in itself is more demonstrably so. Any two-month-old baby has already made as much progress towards decoding the processes of speech communication as the most advanced computers. This is in fact a gross slander on two-month old babies, since computers have made no progress at all. Because speech is acquired by every hearing human child with an I.Q. in excess of 60, it is often assumed that speech is much simpler than written communication, which requires many years of schooling and a rather higher level I.Q. for success which even then is not assured. This is not the case. Speech communication is infinitely more complex than written communication. It is much more readily misunderstood, and is more ambiguous than written communication. It is less precise, but at the same time it carries information on attitudes, emotions etc which written communication is incapable of conveying. L_2 speaking students throughout the world are generally very much happier dealing with the written word than the spoken word, and with good reason. In Papua New Guinea we are extremely fortunate in that tertiary level students have had a long period of exposure to spoken English, and a considerable percentage of this experience has been gained with native speakers. Tertiary level students here are undoubtedly amongst the best L_2 students in the world: i.e. the best able to function effectively through the medium of the L_2 in their speech as well as their written work. However this should not be taken as an indication that these students have no difficulties with spoken language. They probably have as much, and possibly more, difficulty in following a lecture than they have in following written material of comparable difficulty.

Let us consider first the extra-linguistic cues; gesture, facial expression, vocal quality etc., which accompany speech. It is widely believed that the language of gesture is universal, but unfortunately this is not so. The English signal for 'come here' means 'goodbye' in Brazil, and in parts of India they shake their heads 'Yes' and nod their heand 'No'. At

the last conference of the Linguistic Society of Papua New Guinea, a participant protested that at least a smile was a universal symbol, but Anne Chowning showed that this was far from being the case by telling the sad story of a man who brought a present to her at the village where she was staying, and the man, in some distress, had wanted to know why she was laughing at him. The Spaniard is often regarded by the English as being proud, aloof, and reserved, the English are often regarded by Spaniards as being voluble, excitable, volatile. (That should surprise some Englishmen.) Both these reputations probably result from the fact that Spaniards speak with a pitch range approximately half that used by the English and therefore the English tend to sound perpetually overexcited.

Turning to the linguistic aspects of the speech situation; once again the L_2 speaker is at a disadvantage. The phonological system of the L_2 speaker tends to remain that of his first language, and he is quite literally deaf to many of the distinctions of English both phonemic and intonational. I will deal briefly with both of these major aspects of phonology, beginning with the phoneme system.

'.....The phoneme system of a language consists of relationships rather than of specific 'sounds' as such. The 'sounds' made by a Cockney, a New Yorker, a Queenslander or the Queen are likely to be very different, but all of these native speakers of English will tend to preserve a basic system of relationships among the sounds they make, and it is by interpreting this system of relationships, not by identifying particular sounds, that we are able to 'decode' into a message the acoustic signals which our ears receive. So far, computers have been so confused by the different 'sounds', that they have found it impossible to identify the underlying relationships. In order to do so it seems necessary for the computer to approximate somehow to a human nervous system. A Papua New Guinean accent is as acceptable as any other provided that the accent our pupils have is genuinely an accent of English; i.e. that, regardless of the precise acoustic quality of the sounds they utter, they maintain the phonemic distinctions of English, and are not attempting to

communicate an English language message through the phonemic system of their native languages."*

As Ralph Wingfield has pointed out, the distinction between 'test' and 'taste' may cost you your tongue in a chemistry laboratory, but fortunately the lack of certain phonemic distinctions generally has a less dramatic effect, it simply reduces the amount of 'redundancy' in the spoken message.

All language is highly redundant. Even if more than half of a message is lost, the meaning can usually still be established. However this high level of redundancy is presumably there because it is necessary and the lower level of redundancy available to L_2 speakers must make their task more difficult and more of a strain. Lecturers can help both by speaking clearly and by adding redundancy, through repetition rephrasing etc to make up for what may be lost through various causes.

Lecturers can also help the students to improve their speech, not by exercises, which are the business of specialists, but by creating, as has been said before, a felt need to improve communication. Children do not arrive at accents similar to those of the community they live in because they practice imitating that accent. (Again this is contrary to traditional beliefs about language acquisition, but it is now generally accepted that children really do not spend their time trying to imitate adults.) They arrive at the sound system which enables them to communicate most effectively because they feel the need to communicate effectively. The community which our students have entered is that of an international community of English speakers, and our students need to be aware of this fact and to be aware of what is necessary in order to be able to communicate effectively within this society. Tutorial sessions in particular could be used to help students to improve their

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* from *INTRODUCTION TO DISCRIMINATION EXERCISES FOR USE WITH PAPUA NEW GUINEAN PUPILS LEARNING ENGLISH AS A L_2* in PHONEME DISCRIMINATION Johnson, R.K. and Isoardi D. Teaching Methods and Materials Centre, 1971.

spoken English. If those who are working with students could be constructively critical, or even just deaf and determined, students would be bound to improve. It may be that their accent as such will not improve, but if they learn that their speech needs to be rather careful and precise to compensate for cues which are lacking, then they will achieve improved communication ability just as effectively as if their accent had improved (i.e. as if more of the meaningful sound distinctions of English had been present in their speech.)

The following comments on intonation are based on a continuing study* which contrasts the performance of L_1 and L_2 speakers in recognising the meaning cues implicit in the patterns of stress rhythm and intonation (hereinafter intonation) in English. Not long ago it was generally considered that there were no 'rules' for English intonation and certainly none that could be related in any consistent way to meaning. More recent arguments have been presented to the effect that if we know when 'mistakes' are made, we must have an understanding of a set of rules against which these 'mistakes' have been matched. More importantly this study is showing a surprisingly consistent and far reaching relationship between intonation patterns and meaningful interpretation of what is said.

The earlier impression of randomness in this area of the English language is excusable to say the least. Intonation is an extremely difficult area in which to work. The following example will illustrate these difficulties, and show why results of tests even with native speakers tend to produce conflicting results.

Consider (1) and (2) below:

(1) '*black*board'

(2) 'black *board*'

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* A full report is given in Johnson R.K. *TAKE CARE OF THE SENSE AND THE SOUNDS WILL TAKE CARE OF THEMSELVES* KIVUNG forthcoming.

In (1) the emphasis falls on 'black' and in (2) the emphasis falls on 'board'. This distinction is preserved through a large number of similar noun phrases to differentiate a compound noun from a noun with adjectival modifier (black bird, blue bag, light house etc). It should therefore be simple in theory to set up an experimental situation in which the listener signifies whether the noun phrase he has heard refers to a chalk board or to a board which is black etc. However, if a board which is black is being contrasted with a board which is some other colour, then the emphasis shifts from 'board' to 'black' e.g.

(3) I mean the *black* board, not the white one.

The intonation pattern is now identical with (1) above. The phrase in pattern (2) is unambiguous, but pattern (1) is ambiguous, and the listener's judgment as to its meaning will depend upon the context his imagination supplies to fit what he hears.

Thus there are problems in terms of the L_1 speaker as a result of overlapping rules. This is a very different matter from saying that there are no rules, or that the rules are not related to meaning. However it seems from this investigation that tertiary level students in Papua New Guinea who have been exposed to the English language throughout some ten years or more of formal education, and have in many cases received formal training in the intonation patterns of English, have not begun to acquire many of these distinctions.

In the test, L_1 and L_2 subjects listened to sentences which could only be disambiguated through the cues given in the intonation pattern (i.e. as in *black* board vs black *board*). The responses for each group were then classified according to whether the trend shown by the answers was as predicted, not significant, or against prediction.

The results were as follows.

TREND	L_1 (37)	L_2 (229)
As predicted	42	18
Not significant	7	16
Against prediction	4	19
NO. OF ITEMS	53	53

In spite of the kinds of difficulty discussed above, the L_1 speakers showed a strong tendency to choose the predicted meaning. L_2 subjects' responses on the other hand appear to be almost random.

One of the major problems associated with the use of a second language as the medium of instruction (as was noted above) is that it promotes a high level of tolerance of incomprehension and 'semi comprehension'. The results of this test show that where speech is the medium of communication, the inability of L_2 students to gain meaningful cues from intonation patterns must contribute considerably to their communication problems. Some test items will illustrate this. In each case the subject must choose between two possible meanings. His clue lies in the intonation pattern of the test sentence i.e. the way it is said.

Test Item (5) She didn't go to the doctor because she was sick.

Intonation here is the only cue to the attribution of the negative. Subjects had to choose between the following potential meanings:

(a) She did go to the doctor and she wasn't sick.

(b) She didn't go to the doctor and she was sick.

L_1 subjects predominantly chose (a), as predicted. L_2 subjects showed no positive trend, and most failed to make a choice.

Test Item (11) He has plans to leave.

(a) He is going to leave here and go somewhere else.

(b) He has some plans and will leave them here with us.

L_1 subjects tended to choose (b) as predicted. L_2 subjects showed a trend against prediction, choosing (a).

Test Item (14) I think that man is honest.

(a) That particular man is honest in my opinion.

(b) All men are honest in my opinion.

L_1 subjects selected (b) as predicted. L_2 subjects predominantly selected (a).

In Test Items 49 - 53, the word 'Yes' was spoken four times, and each time they heard the word, subjects had to choose between the following meanings:

(a) I agree.

(b) Go on.

(c) You can't really mean 'Yes'?

(d) I'm doubtful.

L_1 subjects proved to be extremely sensitive to the implications of intonation in this instance, selecting as predicted almost without exception. Of the L_2 subjects, a majority made the predicted choice for only one out of the four test items. If this means, as it seems to, that L_2 students have considerable difficulty in differentiating between agreement, incredulity, doubt, and a signal of attention, then teachers in Papua New Guinea are in an extremely difficult situation, for all of us rely very much on the tone of voice we use in such expressions as 'Yes', 'It's not bad' etc to convey our attitudes to our students' contributions.

S U M M A R Y

Language in all its aspects has a high level of redundancy, and many cues to meaning may be lost without affecting total communication. However the more precise that communication needs to be (as for example in tertiary level education) the lower the level of redundancy becomes and the greater the possibility of misunderstanding, incomprehension or semi comprehension. The cues to meaning that we have considered have been aspects of the purely linguistic cues: syntax, phonology and semantics, and also extra-linguistic cues such as those relating to cultural background. In all of these areas it has been shown that the student using a L_2 is working under conditions where redundancy has been reduced to a point where communication is affected.

There are various ways in which a teacher can raise the level of redundancy once he is aware of the problems his students face, and some of these have been discussed, but the main result of an awareness of these problems should be that the teacher is constantly looking for effective feedback from his students, and above all encouraging his students to be aware of the need for precision in communication from the points of view of both the receiver and the communicator. If this need is felt sufficiently strongly, then as with all development or learning, the students' language ability in English will be adapted, to a greater or lesser extent, to the demands being made on it. If no demands are made, or if the demands are unrealistic in the light of the students' difficulties, then no adaptation will take place, and the student may continue to dedicate himself to the dreary and degrading task of merely being a survivor.

...o0o...